

CLAIMS

What was claimed is:

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1. A heat transfer material comprising:
a substrate layer;
a release coating layer;
a peelable film layer; and
an opaque crosslinked polymer layer.

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2. The heat transfer material of Claim 1, wherein the opaque crosslinked polymer layer includes a crosslinkable binder, a crosslinking agent and an opacifying pigment.

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3. The heat transfer material of Claim 2, wherein the crosslinking agent is selected from multifunctional isocyanates, epoxy resins, aziridines, oxazolines, and melamine-formaldehyde resins.

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4. The heat transfer material of Claim 2, wherein the crosslinkable binder contains carboxyl groups and the crosslinking agent contains a multifunctional aziridine, a carbodiimide or an oxazoline functional polymer.

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5. The heat transfer material of Claim 2, wherein the opacifying pigment is a white pigment.

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6. The heat transfer material of Claim 1, further comprising a crosslinked printable layer adjacent the opaque crosslinkable polymer layer.

7. The heat transfer material of Claim 6, wherein the crosslinked printable layer includes a crosslinking agent that is selected from multifunctional isocyanates, epoxy resins, aziridines, oxazolines, and melamine-formaldehyde resins.

8. The heat transfer material of Claim 6, wherein the crosslinked printable layer is capable of being printed by an ink jet printer.

9. The heat transfer material of Claim 1, wherein the peelable film layer is selected from polyolefins; copolymers of olefins; vinyl acetate monomers; acrylic acid monomers; methacrylic acid monomers; acrylic esters; styrene; polyamides; polyesters; or polyurethanes.

10. The heat transfer material of Claim 1, wherein the release coating layer is selected from silicone-containing polymers; acrylic polymers; polyvinylacetates; polystyrenes; polyvinyl alcohols; polyurethanes; polyvinylchlorides; ethylene-vinylacetate copolymers; acrylic copolymers; vinyl chloride-acrylics; or vinylacetate acrylics.

11. The heat transfer material of Claim 10, wherein the release coating layer includes an additive selected from processing aids, release agents, pigments, deglossing agents, antifoam agents, rheology control agents, and mixtures thereof.

12. The heat transfer material of Claim 1, wherein the substrate layer is selected from cellulosic nonwoven webs and polymeric films.

13. A heat transfer material comprising:
a substrate layer;
a release coating layer;
a peelable film layer;

a crosslinked polymer layer having an opacifying material; and

a crosslinked printable polymer layer.

5 14. The heat transfer material of Claim 13, wherein the peelable film layer is selected from polyolefins; copolymers of olefins; vinyl acetate monomers; acrylic acid monomers; methacrylic acid monomers; acrylic esters; styrene; polyamides; polyesters; or polyurethanes.

10 15. The heat transfer material of Claim 13, wherein the release coating layer is selected from silicone-containing polymers; acrylic polymers; polyvinylacetates; polystyrenes; polyvinyl alcohols; polyurethanes; polyvinylchlorides; ethylene-vinylacetate copolymers; acrylic copolymers; vinyl chloride-acrylics; or vinylacetate acrylics.

15 16. The heat transfer material of Claim 15, wherein the release coating layer includes an additive selected from processing aids, release agents, pigments, deglossing agents, antifoam agents, rheology control agents, and mixtures thereof.

20 17. The heat transfer material of Claim 13, wherein the substrate layer is selected from cellulosic nonwoven webs and polymeric films.

25 18. The heat transfer material of Claim 13, wherein the opaque crosslinked polymer layer includes a crosslinkable binder, a crosslinking agent and an opacifying pigment.

30 19. The heat transfer material of Claim 18, wherein the crosslinking agent is a polyfunctional aziridine crosslinking agent.

35 20. The heat transfer material of Claim 18, wherein the crosslinkable binder contains carboxyl groups and the crosslinking

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agent contains a multifunctional aziridine, a carbodiimide or an oxazoline functional polymer.

21. The heat transfer material of Claim 18, wherein the opacifying pigment is a white pigment.

~~22.~~ A heat transfer material comprising:
a substrate layer;
a release coating layer;
a peelable film layer; and
a crosslinked printable polymer layer.

23. The heat transfer material of Claim 22, wherein the peelable film layer is selected from polyolefins; copolymers of olefins; vinyl acetate monomers; acrylic acid monomers; methacrylic acid monomers; acrylic esters; styrene; polyamides; polyesters; or polyurethanes.

24. The heat transfer material of Claim 22, wherein the release coating layer is selected from silicone-containing polymers; acrylic polymers; polyvinylacetates; polystyrenes; polyvinyl alcohols; polyurethanes; polyvinylchlorides; ethylene-vinylacetate copolymers; acrylic copolymers; vinyl chloride-acrylics; or vinylacetate acrylics.

25. The heat transfer material of Claim 24, wherein the release coating layer includes an additive selected from processing aids, release agents, pigments, deglossing agents, antifoam agents, rheology control agents, and mixtures thereof.

26. The heat transfer material of Claim 22, wherein the substrate layer is selected from cellulosic nonwoven webs and polymeric films.

27. The heat transfer material of Claim 22, wherein the crosslinked printable layer includes a crosslinking agent that is a polyfunctional aziridine crosslinking agent.

5 ~~28.~~ A method of forming an image-bearing coating on a surface, wherein the method comprises:

removing a non-transferable portion of a heat transfer material, wherein the heat transfer material comprises a substrate layer, a release coating layer, a peelable film layer, and an opaque crosslinked polymer layer and the non-transferable portion of the heat transfer material comprises the substrate layer and the release coating layer;

10 placing the peelable film layer on the surface with the opaque crosslinked polymer layer exposed; and

15 applying heat and pressure to the exposed opaque crosslinked polymer layer.

~~29.~~ A method of making a printable heat transfer material comprising:

20 applying a release coating layer onto a substrate layer; applying a peelable film coating onto the release coating layer; and

applying a crosslinked layer.

25 30. The method of Claim 29, wherein the crosslinked layer of polymer is selected from an opaque crosslinked polymer layer, a crosslinked printable layer, or a combination of these layers.